

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/30471

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(7) : F41A 3/12  
 US CL : 42/16, 17; 89/17

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 42/16, 17, 18, 20; 89/17

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
BRS text search**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

| Category * | Citation of document, with indication, where appropriate, of the relevant passages                                 | Relevant to claim No. |
|------------|--|-----------------------|
| X          | US 4, 942, 802 A (STONER) 24 July 1990<br>(24.07.1990), see Figs. 7-8 and associated written description           | 1-5                   |
| X          | US 3, 996, 684 A (BAUMAN ETAL.) 14 December 1976<br>(14.12.1976), see Figs. 4-8 and associated written description | 1-5                   |
| X          | US 3, 728, 939 A (WILHELM) 24 April 1973<br>(24.04.1973), see Fig. 1 and associated written description            | 5                     |
| X          | US 4, 617, 749 A (JUREK) 21 October 1986<br>(21.10.1986), see Fig. 10 and associated written description           | 5                     |

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|--------------------------|---|--------------------------|--|
| <input type="checkbox"/> | Further documents are listed in the continuation of Box C.  | <input type="checkbox"/> | See patent family annex.   |
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| Date of the actual completion of the international search<br><br>13 January 2004 (13.01.2004)  | Date of mailing of the international search report<br><br>26 FEB 2004        |
| Name and mailing address of the ISA/US<br><br>Mail Stop PCT, Attn: ISA/US<br>Commissioner for Patents<br>P.O. Box 1450<br>Alexandria, Virginia 22313-1450<br>Facsimile No. (703)305-3230 | Authorized officer<br><br>Stephen M. Johnson<br>Telephone No. (703) 306-4158 |